

REMARKS

Reconsideration of the pending application is respectfully requested on the basis of the following particulars:

Rejection of claims 1, 4-6, and 8 under 35 U.S.C. § 103(a)

Claims 1, 4, 6, and 8 presently stand rejected as being unpatentable over Wagner (U.S. 6,459,578) in view of Mayer (U.S. 4,399,484), and claim 5 is rejected as being unpatentable over Wagner as modified (by Mayer) and further in view of Chuang (U.S. 2004/0095713). This rejection is respectfully traversed for the following reasons.

Claim 1 has been amended to more clearly point out that the airflow channel, which *pierces through* the main body from an opening defined in a top surface of the main body to an opening defined in a bottom surface of the main body, is formed by an inner wall that extends from the *opening in the top surface* of the main body to the *opening in the bottom surface* of the main body, whereby a convective airflow is enabled through the airflow channel.

It is respectfully submitted that none of Wagner, Mayer, or Chuang disclose or suggest an airflow channel as claimed. Further, none of Wagner, Mayer, or Chuang disclose or suggest any convective airflow. Accordingly, no combination of Wagner, Mayer, and Chuang can establish a prima facie case of obviousness of the present invention.

The examiner asserts that Wagner discloses an electronic apparatus with a natural convection structure. Applicant respectfully disagrees. Wagner discloses *multiple air moving devices* to move air through a chassis for housing components. There is no teaching or suggestion that any of the air moving devices provide for natural convection, and further it is respectfully submitted that natural convection would not require multiple *air moving devices*.

Instead of an airflow channel *piercing through* the main body, Wagner teaches “first through third air moving devices 25, 35, 45 draw air from outside of the chassis 10

through the intake port 16 into the intake duct 20. The air flows through the intake duct 20 to an interior end 28 of the intake duct 20, and subsequently through the first air moving device 25. The air then enters the first chamber 18 and flows through the apertures 34 in the plenum 30 into the second chamber 19, the apertures 34 being selectively located in the plenum 30 to direct cooling flows of air onto specific components 150, or zones, in the second chamber 19. The second air moving device 35 may be included on the plenum 30 to direct air onto a heat sink 152 via a duct 36. After the air has passed over the components 150, it enters an interior end 48 of the exhaust duct 40 via the third air moving device 45, and exits the chassis 10 through the exhaust port 17.”

None of the circuitous air ducting of Wagner can be construed as an airflow channel, formed by an inner wall extending from an opening in the top of the main body to an opening in the bottom of the main body, and piercing through the main body to enable a convective airflow.

While the examiner asserts, with reference to Wagner’s figure 2, that Wagner discloses an airflow channel “wherein the airflow channel is formed by an inner wall extending from the top surface to the bottom surface of the main body,” at best Wagner shows a “plenum 30 that divides the chassis 10 into a first chamber 18 and a second chamber 19.” (*Wagner*; col. 3, lines 36-38). Thus, if each of the first and second chambers is construed to be an airflow channel, then neither *pierces through* the main body from an *opening in a top surface* of the main body to an *opening in a bottom surface* of the main body.

On the other hand, if the entire interior of the chassis is construed to be an airflow channel that extends from the air intake to the exhaust port (although this is neither taught nor suggested by the many internal ducts, fans, plenum, etc. of Wagner), then there is no airflow channel defined by an inner wall according to the claimed invention. Instead, the plenum 30 simply forms an obstruction to airflow within the entire interior of the chassis.

Therefore, Wagner clearly fails to disclose or suggest the claimed airflow channel.

As pointed out in the response of January 3, 2006 to the previous Office Action, Mayer does not disclose or suggest an airflow channel that is formed by an inner wall that extends from the top surface of the main body to the bottom surface of the main body.

With reference to Mayer's specification and figures, Mayer discloses a cooling system that includes a housing 10 with plural circuit boards 20 therein. The circuit board 20 further comprises plural electronic components 21 and plural holes 22 defined in the circuit boards. The cover plate 11 is fixed on the housing 10 by screws 12. Inlet openings 14 and the exhaust openings 17 are disposed on the end plates 15 and 16 of the housing 10. A coolant flow may be connected to the housing 10 by flanges 18 to provide airflow, from a source such as a pump, blower fan, or the like (col. 3, lines 12-17). Therefore the coolant flow, shown as the coolant flow lines 30 in Fig. 1 from the inlet openings 14, can pass through the holes 22 in one circuit board and impinge onto the electronic components 21 on the successive downstream circuit board 20 directly as shown in Fig. 2 so as to dissipate the heat generated from the electronic components 21 (Col. 3, lines 53-66).

Thus, it can be recognized that cooling airflow is not confined within an air channel extending from the top surface of the main body to the bottom surface of the main body. Moreover, there is no inner wall defining such an air channel. On the contrary, such an air channel, defined by an inner wall to guide air from the top surface of the main body to the bottom surface of the main body is counter to the method of operation of Mayer's cooling system wherein it is explicitly taught that air is to impinge directly onto electrical components inside the housing.

Further, Mayer teaches the use of fan-forced air for cooling, and therefore does not teach or suggest a natural convective airflow.

Similarly, Chuang fails to disclose or suggest an airflow channel of the present invention. There is no teaching or suggestion by Chuang of an airflow passage piercing through the main body from an opening in a top surface of the main body to an opening in the bottom surface of the main body, there is no teaching or suggestion of such an airflow

channel formed by an inner wall, and there is no teaching or suggestion that any airflow channel enables convective airflow.

Therefore, it is respectfully submitted that for at least these reasons, none of Wagner, Mayer, or Chuang, or any combination thereof, teach or suggest each and every element set forth in claim 1 of the present application. Therefore, it is respectfully submitted that claim 1, along with claims 2-6 and 8 which depend from claim 1, are allowable over the cited references. Accordingly, withdrawal of the rejection is respectfully requested.

Conclusion

Every effort has been made to place the application fully in condition for allowance, and to remove all issues raised by the Examiner in the Official Action.


In view of the amendments to the claims, and in further view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is requested that claims 1-6 and 8 be allowed and the application be passed to issue.

If any issues remain that may be resolved by a telephone or facsimile communication with the Applicant's attorney, the Examiner is invited to contact the undersigned at the numbers shown.

Respectfully submitted,

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